

14 MAY 90

May 14, 1990

PS/WP1 & WP2 - 064

Mr. Yves C. Faroudja
President
Faroudja Laboratories Inc.
946 Benicia Avenue
Sunnyvale, CA 94086

Dear Mr. Faroudja,

Systems Subcommittee Working Party 2 (SS/WP2, ATV System Test and Evaluation) has started work to formulate plans for both audio testing and field tests. The following questions support these activities as well as related activities in PS/WP1, PS/WP2 and SS/WP1. Please review and answer these questions as appropriate.

Audio

These questions are a follow up to Ben Crutchfield's letter of March 23, 1990 requesting technical information about your audio system. Please be sure to include information addressing the following specific questions:

- 1) Is the audio system analog or digital?
- 2) How many audio channels will the system provide? Will all of these channels be of equal performance?
- 3) For digital systems, how much bandwidth will be available for ancillary services such as captioning, teletext, and encryption addressing and control?
- 4) Does your system provide "Surround Sound" like processing?

If you have not already done, please send the information (concerning your audio system) indicated above to SS/WP1 Chairman Birney Dayton as soon as possible.

Transmission System Performance

The following questions have been formulated by members of the SS/WP2 Task Force on Field Testing. Comments or typical NTSC transmission performance information is provided after each question. For further clarification, please contact Bob Unetich, President of ITS Corp. at (412 941-1500).

1. What are the nominal signal level requirements to produce a grade B picture?

(This will be helpful in doing basic path calculations and site selection.)

2. Considering transmission systems (including transmitter, transmission line, filters and antenna systems), what are the likely effects (and what are the likely limits) of:

- a) Frequency Response Errors

(NTSC: +/-1 dB, -2 dB at 4.18 MHz)

- b) Group Delay Variation (Fast & Slow Variations)

(NTSC: +/-100 ns over the video band)

- c) Amplitude Non-linearities

(NTSC: 5%)

- d) Incidental Carrier Phase Mod. (ICPM)

(NTSC: +/-3 degrees, relative to phase at blanking level)

- e) Output System Return Loss (VSWR Effects)

(NTSC: -20 dB over the 6 MHz channel, typically better at visual carrier)

- f) Phase Stability (Jitter)

(NTSC: 50 dB down in a 1 KHz bandwidth, 20 KHz from carrier as observed on a spectrum analyzer)

g) System Reflection

(NTSC: 3-5% amplitude)

h) 60, 120, and 360 Hz AC Hum

(NTSC: -50 dB, rms)

i) Transient Response Errors

(NTSC: 2% 2T Pulse and Bar)

- 3. What are the peak envelope power (P-E-P) and the average power ratios? How should power be measured?**

(What will a transmitter's P-E-P capability need to be relative to average conditions? NTSC is 1.68 X black level power + aural power.)

- 4. What is the likely "efficiency" of a transmitter plant? How is this likely to compare to an NTSC plant of similar coverage area?**

(A full power NTSC UHF station may consume 200 KVA or more depending on amplifier technology.)

- 5. If sound (aural) is separated, how is it diplexed?**

(Notch diplexing causes a large variation in video response and group delay.)

- 6. If there is substantial variation in amplitude and phase near full peak envelope power because of device nonlinearity, can the system performance be degraded?**

(Consider 20 degrees AM to PM and 57% (3 dB) reduction in small signal gain near full P-E-P.)

(NTSC transmitters typically require extensive precorrection to compensate. The precorrection may not be of sufficient bandwidth for HDTV.)

Mr. Faroudja
May 14, 1990
Page 4

7. Are there other transmission distortion levels or transmission parameters that should be specified?

(Are there special concerns because of bandwidth compression or other processing?)

Please respond to the questions concerning field tests to me in writing by June 15, 1990.

Sincerely,

Mark Richer

Mark S. Richer
Chairman,
Systems Subcommittee, Working Party 2

cc: Halfon Hamaoui, Faroudja Laboratories
Irv S. Rosner, Rosner TV Systems
Richard Wiley, Chairman, FCC Advisory Committee
Irwin Dorros, Systems Subcommittee
Joseph Flaherty, Planning Subcommittee
Jim Tietjen, Implementation Subcommittee
Thomas Stanley, Office of Engineering & Technology, FCC
Richard Green, Cable Labs
Craig Tanner, Cable Labs
William Sawchuck, CRC
Charles Rhodes, ATTC
Peter Fannon, ATTC



Advisory Committee on Advanced Television (ATV) Service

PS/WP1&WP2-065

JOINT MEETING OF
FCC ADVISORY COMMITTEE ON ADVANCED TELEVISION SERVICE [ATS]
PLANNING SUBCOMMITTEE
WORKING PARTY 1 [PS/WP1]
ON ATS TECHNOLOGY ATTRIBUTES AND ASSESSMENTS
AND WORKING PARTY 2 [PS/WP2]
ON ATS TEST PLANNING

1. The meeting was called to order by WP1 Chairman, Ren McMann at approximately 10:15 a.m., on 29 May 1990, in Conference Room C, NBC, 30 Rockefeller Plaza, New York, NY 10112.

Those present were:

Ren McMann, Chairman, WP1
Stan Baron, Vice-Chairman, WP1 (NBC)
Max Berry (Faroudja Research)
Joseph Flaherty, Chairman, PS (CBS)
Hugo Gaggioni (Sony)
Jim Gaspar (CBS)
Alan Godber (NBC)
Charles Heuer (Zenith)
Jack Kean (ConnETV)
Bob McFarlane (Philips Labs)
Irv Rosner (Faroudja Research)
Greg Thagard (Showscan)

2. Introductory Remarks:

The Chair read the statement of work to be accomplished as contained in document PS-0075, 18 April 1990 (PS/WP1&2-066, attached).

J. Flaherty explained that the charge to the Working Groups results from issues raised in the ACATS Third Interim Report. The statement of work has also been reviewed by Mr. Wiley with the proponents.

J. Flaherty reported that one of the ACATS current critical path items is obtaining necessary funding to support the subjective testing program. The funding problem has been made more complicated since PSI has notified Mr. Wiley that they no

longer wished to be considered for testing and that MIT has not forwarded its funding as yet.

J.Flaherty further reported that Tektronix has announced a delay in delivering the format converter. The new schedule anticipates delivery in "mid to late September".

J.Flaherty read from Mr.Wiley's letter of 10 May 1990 (see PS/WP1&2-063, attached). J.Flaherty urged that PS/WP1 and PS/WP2 continue to meet jointly and work in concert.

In response to a question about where field testing fitted into the schedule, J.Flaherty reported that a plan will be developed by the end of 1990 and then a means of funding the tests will need to be developed. The FCC sees field testing as paramount in importance.

J.Flaherty distributed a copy of the letter sent by Marck Richer to Yves Faroudja requesting certain additional information about the characteristics of his system (see PS/WP1&2-064, attached). A similar letter was sent to all precertified proponents:

3. The draft agenda (PS/WP1&WP2-061, attached) was accepted.

4a. Audio Test Procedures

After a short discussion, the members agreed that testing of the audio channels in the digital domain and objective testing in the analog domain provides important and useful information about bit rate errors, system robustness, and the characteristics of the system. However, these tests are not sufficient to determine system performance and must be supplemented by **subjective assessment** during the ATTC laboratory tests **by an expert panel**. [Added to the attributes list (doc. PS/WP1-054) was section II, **3.14 Subjective Assessment by an expert panel**.]

H.Gaggioni reported that SS/WP4 Task Force on Priorities requires clarification of certain issues and raised the question of defining a minimum audio service. The members agreed that there should be no change to the present statement that the minimum service is that provided within current NTSC practices namely a stereo audio pair and a SAP channel.

The members agreed to modify the list where measurement of Audio/Video delay is called for to add Audio/Audio delay. This effects items: **3.6, 3.9.4.3, 3.10.4.3, and 3.11.4.3, 4.2**

The members did agree to add to the list under II, 3.11, Audio Security, a request for information about any scrambling techniques, as section **3.11.4 Scrambling Techniques**. The current section 3.11.4 would be renumbered as section 3.11.5.

The members considered the question of adding an attribute concerning response to "sudden cuts" and concluded that sections 3.9.4.7, 3.10.4.7, and 3.11.5.6 - "Any other artifacts" covered this item.

4b. Dynamic Resolution Test Methodology

J.Kean reported that SS/WP2 has decided that a dynamic zone plate test signal will be used to test dynamic resolution. The members concluded that the current attributes list sufficiently covers this item but noted that during objective testing at their should be qualitative assessment of the effect on the image, as well as, quantitative assessment.

4c. System Field Testing.

The members agreed that for the purpose of testing compatible systems, FCC Regulations, Part 73 should be applied as appropriate.

The members agreed that Working Parties 1 and 2 should provided input to the Chair of SS/WP2 Task Force on Field Testing, J.Cohen, on the concerns the members have on this issue. The members agreed that there is a consensus within WP1&2 that while laboratory testing will produce much information on the performance characteristics of a system, that issues of multiple path and ATV/ATV interferences can only be tested in the field. C.Heuer, J.Kean and L.Libin plus one other individual representing the cable industry were appointed as subcommittee to prepare an overview statement for presentation to J.Cohen.

5a. Use of Showscan Program Material

After discussion and consideration of the system testing requirements, the members reached consensus that a signal source of high spectral and temporal quality having no lag and exhibiting high quality MTF should be employed and that the Showscan system could provide such a source. The members recommended the use of 10 seconds, minimum of a such a source to provide a means of demonstrating growth potential and possibility of system adeptness to handle future high definition sources. (See letter from A.Godber, PS/WP1&2-067, attached).

5b. Develop Test Method for EDTV into IDTV Receivers.

The discussion on this issue was based on questions raised in the letter of 14 December 1989, from North American Philips (see doc. PS/WP1&2-062, attached).

The members agreed that in the testing of any proponent system, sample IDTV receivers of the latest type should be included in the tests. The attributes list for

Section II, 8. Consumer Equipment Issues was modified to include **8.3.4 IDTV Receiver Compatibility**. IDTV and standard NTSC receivers should be observed for performance with and without line and/or frame comb filtering.

5c. Use of Pre-Enhanced Material for Testing.

The members first discussed what was meant by the term "enhancement" and agreed that adjusting camera response to being essentially flat is not considered enhancement. The members agreed that "non-enhanced" materials should be used and that all materials should be "normalized". Normalization means that camera generated images should be made to match as closely as possible electronically generated images within the bandwidth limitations of the system and that adjustments to camera generated images should not produce overshoots of over 5% with a goal of a maximum of 2% being urged.

No images should be used for testing which have been noise cored.

6. New Business

The members agreed that PS/WP1 and PS/WP2 should continue to meet jointly.

The next joint meeting was scheduled for 6 July 1990 at 10:00 am at CBS, 555 W.57th St., New York City.

7. The meeting was adjourned.



Advisory Committee on Advanced Television (ATV) Service

PS/WP1 & 2-066

Doc. No. PS-0075Date April 18, 1990

Planning Subcommittee Statement of Work Fourth Period

This document is a revision of PS-0073 that has incorporated new and revised action items resulting from the Steering Committee meeting of April 10, 1990.

PSWP-1 and PSWP-2

- o Coordinate with SSWP-2 to ensure that the ATTC has complete audio and data channel test procedures by July 1, 1990.
- o Develop a test methodology for assessment of ATV transmission system dynamic resolution. Coordinate with SSWP-2 to ensure that a procedure is submitted to the ATTC by July 31, 1990.
- o Define the scope and objectives for conducting field tests and solicit guidance from the FCC on this matter. Coordinate with PSWP-4 on cable related aspects of field testing. Solicit proponents for characteristics of ATV transmitters and coordinate this effort with PSWP-3. Provide information obtained from these activities to SSWP-2 Task Force on Field Test Procedures.

PSWP-3

- o Develop preliminary channel allotment plans and assignment options based on inputs from the System Subcommittee and WP-3 developed planning factors.
- o Examine the benefits of collocation of ATV transmitters.
- o Develop necessary tools to characterize interference between NTSC and ATV, and recommend mutual interference reduction measures such as collocation.
- o Complete work on identifying the availability of spectrum to support ATV broadcast auxiliary operations (including satellite, STL and ENG). Identify alternative auxiliary support strategies such as fiber optics.
- o Develop a strategy to reduce data obtained from impairment testing to obtain meaningful evaluations of ATV transmission systems.

- o Coordinate with the Implementation Subcommittee on the evaluation of the economic implications versus the technical implications of adopting various simulcast allocation plans.
- o Coordinate with PSWP-1 and PSWP-2 to obtain transmitter characteristics from ATV system proponents.

PSWP-4

- o Review existing documentation of recommended multipoint specifications from EIA and the ATSC T3S2 specialist group. If appropriate, approve the multipoint specifications and submit a report to the Chairman of the Advisory Committee.
- o Research the signal format specification plans for future DBS systems to determine if they will be compatible with terrestrial broadcast ATV systems.
- o Coordinate with PSWP-1 and PSWP-2 to ensure that the field test plan encompasses end-to-end testing of cable systems.

PSWP-5

- o Estimate costs to convert present NTSC stations to ATV simulcast operation basing equipment costs on a competitive market place.
- o Develop a family of market penetration projections in conjunction with SSWP-3.
- o Investigate the implications of ATV policies for industrial development and international trade.

PSWP-6

- o Complete the camera tests for 1050/59.94/2:1, 787.5/59.94/1:1 and 525/59.94/1:1 formats.
- o Test the telecine to be used for transfer of 35mm, 24fps film.
- o Conduct the source material production methods demonstration. Priority is to demonstrate 4 identical serially shot sequences and sequences shot in 1125/60/2:1 converted to 1050/59.94/2:1 and 525/59.94/1:1.
- o Reshoot, digitize and approve still test materials. Obtain rights to test materials in writing.
- o Revise and approve the still test material.
- o Complete production of the dynamic source material and have it ready for testing no later than September 1, 1990

PSWP-7

- o Seek funding for proposed audience research studies. Monitor the activities of SSWP-2 Task Force on Field Test Procedures for possible equipment to be used for audience testing.



PS/WP1 & 2-067

Room 1600W,

April 25th, 1990

Mr. Renville McMann,
Chairman of PS/WP1, ACATS,
(Telephase Labs)
963, Oenoke Ridge Rd.,
New Canaan, Connecticut 06840

Dear Ren,

As Chairman of the Ad Hoc Group on Production Planning, which is putting together the Motion Source Materials for PS/WP6, our committee has felt for some months that a source of moving images is needed which has higher performance than that which is currently available with Advanced Television hardware, particularly cameras and telecines. It was felt that because the transmission system for Advanced Television should be designed to be viable for many years, as was NTSC, that the chosen system must be expected to accomodate improvements in source devices over the years of its use.

It was therefore felt that such a source of test images is a necessary attribute to assure that the chosen system is tested adequately.

Members of the Ad Hoc Group developed the concept of a super quality image which could be created now, using 65mm Showscan film run at 60 frames per second. This combination would produce a very high horizontal and vertical resolution and remove the motion artifacts associated with 24 frames per second film. A further development of shooting the film using a "360 degree" shutter was considered, but was thought to be difficult to achieve in the time frame available.

The image transfer device would be the BTS camera, permitting output in all of the production formats required. In order to eliminate a significant deficiency of the photoconductive telecine technique, it would be necessary to transfer the film one frame at a time, using the integration capabilities of the camera, to thereby remove lag.

An improvement in the film stability by the use of register pins has also been considered, and can be incorporated in the Showscan telecine.

The hardware for this proposal is being constructed for Zenith Electronics, and will become a high definition tool for their use. It will also be provided to the Ad Hoc Group as part of Zenith's contribution to the Ad Hoc Group's work.

As a matter of information, it should be noted that it is our intention to also use this telecine for the 35mm 24 frame per second film transfers required, using the BTS camera.

The Ad Hoc Group requests that your Working Party consider the use of this super quality image source as a required attribute for the testing of the proponent transmission systems.

It is our earnest desire to make sure that the chosen transmission system is adequate to the task of transmitting high definition production images, and we feel that an image with performance higher than that of today's cameras and film chains is required, to assure this capability.

If desired, an inspection of the hardware proposed can be arranged for members of your committee.

We await your consideration of this matter.

A handwritten signature in dark ink, appearing to read "Alan S. Godber". The signature is fluid and cursive, with the first name "Alan" and last name "Godber" clearly distinguishable.

Alan S. Godber
Chairman Ad Hoc Group on Production Planning,
ACATS, PS/WP6.

ASG
4/24/90
apswp6a7/3-4



**Advisory Committee on
Advanced Television (ATV) Service**

PS/WP1&2-068

JOINT MEETING NOTICE

**FCC ADVISORY COMMITTEE ON ADVANCED TELEVISION SERVICE
PLANNING SUBCOMMITTEE, WORKING PARTIES ONE AND TWO**

**6 JULY 1990
10:00 AM**

**CBS
RM.161, 10TH FLOOR
555 WEST 57TH STREET
NEW YORK, NEW YORK**

DRAFT AGENDA

1. Call to order by the Chairman
2. Approve agenda
3. Approval of Minutes of 29 May 1990 (PS/WP1&2-065)
4. Report of Subcommittee on Field Testing (C.Heuer & J.Kean)
5. Report on ATTC Subjective Testing (A.Godber)
6. Other Old Business
7. New Business
8. Adjournment



Advisory Committee on Advanced Television (ATV) Service

PS/WP1-069

DRAFT

MINUTES

First meeting PS/WP-1&2 RF Specialist Group (teleconference)
June 28, 1990

The meeting was called to order by Chairman Kean at 4:00PM
Participating: Jules Cohen, Richard Green, Charles Heuer, Brian James, Jack Kean and Louis Libin.

The agenda was approved without change. It was agreed that the Planning Subcommittee RF Specialist Group should move quickly to avoid delaying related work in the Systems Subcommittee.

The committee discussed the following:

That interference (ATV to NTSC, ATV to ATV, NTSC to ATV) is an important criteria for selection of systems for field testing. Data derived from objective laboratory tests relating to interference should play a principal role in the selection of systems to be recommended for field tests. Although important, quality judgements based on objective laboratory tests should not be used to rule out a system for field testing. It is anticipated that at least two systems shall be recommended for field testing.

It was pointed out that field testing will necessarily be conducted with either existing or prototype equipment somewhat inferior to that available once ATV transmission begins. This will limit the results that can be obtained. Despite this, there is no substitute for proper field testing. The digital nature of some systems may cause laboratory coverage predictions to need field validation. Jules Cohen believes ATV signal comparison with collocated NTSC facilities could yield predictive data applicable to other locations. The Specialist Group urges the attempt to develop such data as part of any field testing program.

In conformance with the March 10 FCC ruling, planning for EDTV system testing was deemed unnecessary at this time.

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MINUTES

First meeting PSWP-1&2 RF Specialist Group (teleconference)
June 28, 1990

Dick Green proposed the Planning Group study the issue of venue selection in relation to representative conditions including cable system performance. Jules Cohen stated that venue selection should represent common conditions rather than extremes. Charles Heuer expressed reservations about Planning Group involvement at this time. Dick believes venue selection is a proper function of the Planning Group. Some dissatisfaction was expressed with Washington as the only venue. Jack Kean stated that a more representative location would include a central core of high or medium-high buildings with the transmission plants located at the periphery of the metropolitan area. It was agreed that this configuration is common to cities of varying sizes throughout the country. The planning group will try to deal with the venue issue as quickly as possible.

Several issues were discussed without resolution:

1) There seems to be some confusion concerning the definition of field testing. Should the tests include satellite distribution or not? Some (especially the cable representatives) members of the group felt that the tests should be an end to end evaluation including satellite delivery to broadcast stations, broadcast transmission and cable transmission. Others felt that the tests would be restricted to tandem broadcast and cable transmission.

2) There is also a need to clarify the criteria for selection of venues for field tests. How many sites shall be selected? Is Washington, D.C. acceptable if only one site is chosen? What are the attributes for selection of field test venues?

Dick Green said he will seek guidance on these issues.

The meeting was concluded at 6:20 PM. Jack Kean took the minutes.



Advisory Committee on Advanced Television (ATV) Service

DRAFT

MINUTES Second Joint Meeting of PS/WP-1&2 July 6, 1990

The meeting was called to order by Chairman McMann at 10:00AM
Participating: Max Berry, Charles Heuer, Jack Kean, Tom Keller,
Renville McMann, Victor Towil, Tony Uyttendaele and Tom Watson.

The minutes of the first meeting were approved as written. Some attendees did not receive copies of the minutes by mail.

Jack Kean reported on the June 27th meeting of the PS/WP-1&2 Field Testing Specialist Group. As a result of subsequent discussion of this subject, the Subcommittee developed the following statements:

- 1) No final report and no system selection should be made based on objective laboratory testing alone. Field tests must be performed before a recommendation to the Federal Communications Commission is made.
- 2) Field site selection must substantiate laboratory results by including multipath with multiple long and short term reflections and ignition and power line interference as well as co, adjacent, and taboo interferences (ATV-NTSC, NTSC-ATV)."
- 3) It is considered highly desirable to pass the RF signal through a cable system as a part of field testing."
- 4) In accordance with the statement issued March 10, 1990 by the FCC. HDTV systems should receive first priority for field testing.

Charles Rhodes has requested WP-1 delete the chroma resolution measurement requirement in Section 6.2. He proposes to test chroma channel transit response by introducing a chroma only transition in the test signal.

In response to this request, WP-1&2 stated: "We recognize the difficulty of obtaining the MTF curves requested in attribute 2.2 without obtaining internal signals from proponent equipment. Because of the importance of this attribute, indirect methods may be employed to quantify chroma response." It was pointed out that the value to be measured is for the smallest object that can be reproduced in color.

Attribute 6.4 "Susceptibility To Interference." was modified to add "picture and sound" wherever the word "picture appears.

In other issues, Charles Heuer pointed out that the attribute list has not been updated to incorporate changes from the last meeting.

The meeting was adjourned at 1:10 PM. In the absence of the Secretary, Jack Kean took the minutes.



NEWS

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This is an unofficial announcement of Commission action. Release of the full text of a Commission order constitutes official action. See 47 C.F.R. § 1.121 (D.C. Cir. 1973).

Report No. DC-1702

ACTION IN DOCKET CASE

August 28, 1990

FCC DECISION ON ATV EXPLAINED AND DISCUSSED
(MM DOCKET 87-268)

The Commission has issued a Report and Order explaining its March 21, 1990, decision on selection of an Advanced Television (ATV) system.

In a Public Notice adopted on March 21, 1990, the Commission stated that it had decided to select the "simulcast" option for Advanced Television (ATV) Service. Under this approach, the Commission will select a 6 MHz high definition television system that is independent of the currently used "NTSC" (National Television Systems Committee) TV transmission system.

In the Public Notice, the Commission also indicated that it did not intend to give further consideration to ATV systems that required additional spectrum to augment the existing 6 MHz channel used for broadcast television. The Commission stated, however, that it would leave open the possibility of considering an extended definition television (EDTV) system. Finally, the Commission noted it would issue a Report and Order explaining the basis for these decisions.

In the Report and Order the Commission said that selection of a simulcast system would offer the potential for significantly greater improvement in the quality of television picture and audio performance than NTSC compatible systems. Such a system is expected to be viable over the long term by permitting the introduction of future changes and improvements in a timely and non-disruptive manner. Further, simulcast systems are not constrained by the limitations inherent in the NTSC technology.

The Commission stated that a simulcast system will also be spectrum efficient and facilitate the implementation of ATV service. Such a system will transmit the increased information of an EDTV signal in the same 6 MHz channel space used in the current television channel plan. This will allow broadcasters to offer EDTV at the earliest possible date and consumers to enjoy the greatest degree of initial improvement in the quality of their TV picture and sound. It will also eliminate confusion for consumers about which type of receiver to purchase.

(over)

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The Commission noted that, at this time, the individual candidate simulcast, or HDTV, systems are still undergoing final development. It said it did not have full information on the performance attributes of any of these systems, and, therefore, it was not taking a position on the desirability of any particular simulcast system as the standard to choose.

The Commission said it would keep open the possibility of adopting an EDTV system. For example, it is possible that a breakthrough development in a fully digital simulcast system may occur that would require additional development time. Alternatively, it is possible that an EDTV system could prove to provide quality similar to that of current HDTV systems and thereby be more cost effective for both broadcasters and consumers. In view of these possibilities, the Commission said, it would continue to examine all aspects of 6 MHz EDTV technologies, including their quality, technical attributes, potential for consumer acceptance and cost effectiveness. It said that after the final report from the testing program is available, it will reexamine the matter of how to implement ATV service. At that time, if the Commission finds that the single step simulcast approach for implementation is not the appropriate course of action, it may, alternatively, consider an EDTV system or some approach that would involve selection of both simulcast and EDTV standards.

In conjunction with these policy decisions, and its goal to select a system as promptly as possible, the Commission said it was expediting the completion for its program for testing and evaluation of the candidate ATV systems. It has directed the staff to work closely with the testing laboratories and is in the process of formulating, with the Advanced Television Test Center and Cable Labs, a program of active participation in the testing process. To this end, it has requested that the Advisory Committee make any test data it generates available to the FCC as soon as it is produced. The Commission said its goal was that, through the collective efforts of the Advisory Committee and FCC staff, a final report with recommendations can be completed by autumn 1992.

Finally, the Commission said it intends to maintain a flexible position with respect to new ATV developments that offer important new benefits and which are in a sufficiently concrete state of development to be considered with the existing systems. It recognized that other parties in addition to those currently participating in the test program are working on system designs and that it is possible that some of these systems could offer features superior to those already scheduled for testing. The Commission does not want to foreclose the possibility of considering any of these systems. Thus, with the assistance of the Advisory Committee, the Commission will review carefully but quickly any such new developments early in 1992. If it finds any new systems that are sufficiently developed to be tested, it will supplement the testing schedule to accommodate them.

The Commission also noted that this Report and Order addresses only a limited number of issues pertaining to technical standards. It said it would address other issues in subsequent actions in this proceeding.

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Action by the Commission August 24, 1990, by First Report and Order (FCC 90-295). Commissioners Sikes (Chairman), Quello, Marshall, Barrett, and Duggan.

-FCC-

News Media contact: Rosemary Kimball at (202) 632-5050.
Office of Engineering and Technology contact: Alan Scillwell at (202) 633-8162.

JOINT MEETING NOTICE

FCC ADVISORY COMMITTEE ON ADVANCED TELEVISION SERVICE
PLANNING SUBCOMMITTEE, WORKING PARTIES ONE AND TWO

8 OCTOBER 1990
10:00 AM

NBC
30 ROCKEFELLER PLAZA
MEZZANINE CONFERENCE ROOM C
NEW YORK, NEW YORK

DRAFT AGENDA

1. Call to order by the Chairman
2. Introductory Remarks
3. Approve agenda
4. Possible additional attributes and test requirements (see note below).
5. New Business
6. Adjournment

NOTE: We have been asked by the Planning Subcommittee chair to consider the effects of preprocessing (such as picture manipulation and standards conversion) on input signals to an ATV system. We have also been asked to consider the effects of reasonable amounts of noise on an input signal.

PS/WP1&WP2-072

JOINT MEETING OF
FCC ADVISORY COMMITTEE ON ADVANCED TELEVISION SERVICE [ATS]
PLANNING SUBCOMMITTEE
WORKING PARTY 1 [PS/WP1]
ON ATS TECHNOLOGY ATTRIBUTES AND ASSESSMENTS
AND WORKING PARTY 2 [PS/WP2]
ON ATS TEST PLANNING

8 October 1990

1. The meeting was called to order by WP1 Chairman, Ren McMann at approximately 10:07 a.m., on 8 October 1990, in Conference Room C, NBC, 30 Rockefeller Plaza, New York, NY 10112.

Those present were:

Ren McMann, Chairman, WP1
Stan Baron, Vice-Chairman, WP1 (NBC)
Tom Keller, Vice-Chairman, WP1
Jim Gaspar (Panasonic)
Alan Godber (NBC)
Bronwen Jones (CableLabs)
Jack Kean (ConnETV)
Jeff Krauss (GI)
Christopher Tobin (Spanish Broadcasting System)

2. Introductory Remarks:

The Chair read the statement of work to be accomplished as contained in a letter, dated 7 September 1990, from J. Flaherty, Chair of Planning Subcommittee (See PS/WP1&WP2-073, attached).

3. The draft agenda (PS/WP1&WP2-071, attached) was accepted.

4a. Additional Attributes

The Working Party reviewed documents pertaining to the issues being investigated submitted by B.Dickens [CBS] (See PS/WP1&2-074, attached) and A.Godber [NBC] (See PS/WP1&2-075, attached).

[A letter was received from Zenith after the meeting had closed on the same issues. A copy of the Zenith letter is attached as PS/WP1&2-077.]

After discussion, the members agreed to modify the attributes list section 1.4 **Artifacts** and to add the following:

1.4.1 The performance of ATV systems which have been spatially or temporally prefiltered including the use of motion detection.

1.4.2 The performance of ATV systems in response to input signals having random noise, clock noise, etc. superimposed on them.

B.Jones, representing SS/WP2, questioned whether these attributes were important enough to be added to the official list. There was consensus within those present that the two attributes warranted being listed.

Some members present raised concerns about the ability of the ATTC to test these attributes considering costs and time involved. The Working Party decided that it was inappropriate for it to make a decision on this question.

4b. System Field Testing.

J.Kean reported on the work in SS/WP2 on the subject of field testing. (See PS/WP1&2-076, attached). In summary, the Ad-hoc Alternative Site Search Group is seeking a full-power test with an antenna designed for broadcast purposes. Testing is planned for late 1991 or early 1992.

Signals originating in NTSC and the candidate ATV system will be alternately switched onto the antenna. NTSC will be used as a control signal for comparison.

The question was raised that the field test of the "candidate system" appeared to be scheduled prior to selection of the candidate. There is an expectation that the field testing schedule will be revised.

There was a discussion on the appropriateness of Washington as the test site and the need to have more than one site. There was consensus to add two more attributes to the list in **Section 6.9 Transmission Field Testing** as follows:

6.9.1 At least one (1) location exhibiting average amount of difficulty, and

6.9.2 At least one (1) location considered "difficult".

Questions were raised as to whether the issues of testing for cable systems and satellite systems were adequately covered. There was agreement that the current list

is adequate.

On the issue of coverage, J.Kean did not believe that coverage was going to be a part of the field testing program. Broadcasters present believed that this was an important issue.

J.Kean was assigned the task of liaising with ATTC to provide specific descriptions on how each of the attributes would be tested.

J.Kean reported that the field tests are designed to obtain data on system performance in response to multi-path delays, airplane flutter, weather conditions, and the like. The testing will also be directed to the UHF band. There are currently no plans to test in the low-band VHF spectrum. The broadcasters present believed that this was an important issue.

5. The meeting was adjourned.

ATTACHMENTS: PS/WP1&2 - 071, -073 through -077.

Advance

TV

Advisory Committee on Advanced Television (ATV) Service

Doc. No. PS/W1 & WP2-073

Date September 7, 1990

Dear Ren and Dick:

The attached letter from the CBS member of FCC ADCOM PS/WP-6 raises an important issue that relates to the objective testing of proponent ATV Systems.

As a matter of highest urgency, please determine if such tests should be listed as "attributes" and, if so, please draft suitable "test procedures" to be forwarded to FCC ADCOM SS/WP-2.

By copy of this memorandum, Messrs. Fannon, Tanner, and Richer are asked to comment directly to Messrs. McMann and Green.

Best regards,



Joseph A. Flaherty
Chairman, Planning Subcommittee
FCC Advisory Committee on
Advanced Television Service

Mr. Renville McMann
Chairman, FCC ADCOM PS/WP-1
963 Oenoke Ridge
New Canaan, CT 06840

Mr. Richard Green
Chairman, FCC ADCOM PS/WP-2
President & Chief Executive Officer
Cable Television Laboratories Inc.
1050 Walnut Street
Suite 500
Boulder, CO 80302

Att.

cc: Mr. Richard Wiley, Chairman FCC ADCOM
Mr. Lex Felker, Executive Director, ATTC
Mr. Craig Tanner, Chairman, FCC ADCOM PS/WP-6
Mr. Irwin Dorros, Chairman, FCC ADCOM SYSTEMS SUBCOMMITTEE
Mr. Mark Richer, Chairman, FCC ADCOM SS/WP-2



Advisory Committee on Advanced Television (ATV) Service

Doc. No. _____

Date August 30, 1990

Dear Mr. Flaherty,

During the discussions in the Ad Hoc Groups of Planning Subcommittees Working Party 6 regarding the testing of the 1125/60 to 1050 and 525 line systems transconverter, it became apparent that some of the proponents of ATV systems using 1050 and 525 line source signals are very concerned that processing of the source signal would degrade the performance of their systems. This concern over the effect of the signal processing in a simple line converter raises the question of the effect of the normal signal processing done in program production; squeeze, zoom, picture rotation, slow motion, etc. would have on the performance of the proposed ATV transmission systems. It would appear advisable to include video source signals that have gone through similar processing in the ATV terrestrial broadcasting system test program.

The extent of the proponents concern was evident from their insistence on the use of perfect computer generated signal for testing the transconverter because television cameras might mask the effects of signal processing in the converter that could degrade the performance of their proposed systems. Of particular concern to these proponents were:

- * the effect of concatenating motion compensation;
- * the effect of filtering and re-sampling;
- * the presence of aliasing components.

In the production and distribution of present day television programs extensive use is made of image processing techniques similar to those of concern to some of the ATV system proponents. With the advent of HDTV the use of these techniques will be more common. In addition, there will be extensive use of three dimensional data compression techniques because of the high data rate required for HDTV. Since the chosen ATV broadcast system will have to pass television signals that have been processed by these techniques and considering the concern of some proponents over the effect of image processing on the performance of their proposed systems it would appear desirable to include in the